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BEFORE THE

IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE APPLICATION OF IDAHO POWER COMPANY TO UPDATE ITS WIND INTEGRATION RATES AND CHARGES.	) Case No. IPC-E-13-22) SUPPLEMENTARY COMMENTS) OF AWEA AND) RENEWABLE NORTHWEST)

I. INTRODUCTION

Pursuant to Idaho Public Utilities Commission ("IPUC" or "Commission") Rule of Procedure 203 and the Notice of Amended Schedule issued on July 15, 2014, the American Wind Energy Association ("AWEA") and Renewable Northwest[1] hereby file these Supplementary Comments on Idaho Power Company's ("Idaho Power" or the "Company") November 29, 2013 Application to Update Wind Integration Rates and Charges (the "Application"). Using the Company's 2013 Wind Integration Study ("2013 Study") as a basis for the proposed rates, the Application seeks to increase the wind integration rates and charges applicable to qualifying facilities ("QFs") under the Public Utility Regulatory Policies Act of 1978 ("PURPA").[2]

[1] Following the commencement of this proceeding, in recognition of the organization's twentieth anniversary, Renewable Northwest Project changed its name to "Renewable Northwest."
[2] *In the Matter of the Application of Idaho Power Company to Update its Wind Integration Rates and Charges*, Case No. IPC-E-13-22, Application at Part IV (Nov. 29, 2013).

As discussed in these Supplementary Comments, the majority of the costs identified in the 2013 Study are not "wind integration costs," but rather are costs associated with remarketing must-take PURPA energy when the utility is surplus on energy; these costs should be included in the Company's avoided cost methodology. A true "wind integration study" would not use the methodologies employed in the Company's 2013 Study and would instead focus on the within-hour balancing needs of the net load and wind variability. Accordingly, the 2013 Study should not be used as a basis for determining wind integration costs applicable to wind QFs, and the Company should instead use the 2007 Wind Integration Study or a revised study for this purpose. After conducting such a study, to the extent that Idaho Power finds that there are additional costs associated with must-take PURPA wind that are incremental to the integration costs identified in a proper study, those costs should be captured in the Company's avoided cost methodology.

If the Commission nonetheless accepts the 2013 Study as the basis for wind integration charges applicable to wind QFs under PURPA, at a minimum, the Commission should clarify that (1) it is accepting the 2013 Study without accepting the underlying methodologies; (2) the wind integration charges would not be applicable to a wind generator transmission customer transferring its energy outside of the Idaho Power Balancing Authority Area ("BAA"); and (3) the wind integration charges would not be used as the basis for wind integration charges in a subsequent Integrated Resource Plan ("IRP") for purposes of evaluating different energy resources to serve an identified energy need on Idaho Power's system.

II. COMMENTS

1. The Majority of the Costs Identified by Idaho Power Are Not "Wind Integration Costs."

The majority of the costs identified in the Company's 2013 Study and Application are not properly characterized as "wind integration costs." Indeed, the 2013 Study—which forms the

basis for the costs proposed in the Application—uses a methodology that is wholly inconsistent with best practices in wind integration analysis; these methodological flaws are discussed in Section 3 below. In its Reply Comments, Idaho Power responds to criticisms of its study methodology by arguing that standard industry approaches to wind integration studies "fail[] to take into account Idaho Power's own specific and real-world operation of its system."[3] Indeed, all power systems are unique, and specific circumstances should be taken into account when analyzing system costs. However, unique circumstances on a given system do not warrant abandonment of standard statistical analysis and industry standards on wind integration analysis.

Moreover, we disagree that the system circumstances described by Idaho Power translate to costs that are inherently attributable to the costs of integrating wind energy. As Idaho Power explains, "the fact that all but 101 MW of the 678 MW of wind on Idaho Power's system is PURPA generation makes a significant difference because the Company does not have the operational flexibility with PURPA generation that it may have (or another utility may have) if its wind generation is non-PURPA."[4] This quote from Idaho Power's Reply Comments underscores that the costs the Company identifies as "wind integration costs" are the costs of remarketing must-take PURPA energy when the utility is surplus on energy. Idaho Power's acknowledgement that the situation is different for non-PURPA wind further evidences that the majority of the costs at issue here are not "wind integration costs." In order to untangle these issues, Idaho Power should first conduct a proper wind integration study consistent with its 2007 Wind Integration Study methodology. After conducting such a study, to the extent that Idaho Power believes there are additional costs associated with must-take PURPA wind that are

[3] Idaho Power Reply Comments at 11.
[4] *Id.*

incremental to the integration costs identified in a proper study, those costs should be captured through the Company's avoided cost methodology.

2. The Majority of the "Integration Costs" Identified by Idaho Power Belong in its Avoided Cost Methodology.

The majority of the costs identified by Idaho Power's 2013 Study should be included in the Company's avoided cost methodology. In response to our data request to list the factors that go into the Company's avoided cost calculation under the IRP methodology, Idaho Power responded that the methodology "utilizes the *hourly* generation profile of the proposed qualifying facility ('QF') project in conjunction with the AURORA model to perform a production cost simulation for the purpose of determining the highest displaceable, or avoidable, incremental cost incurred *during each hour* of a QF's proposed contract term."[5] In other words, the avoided cost methodology already produces an hourly forecast, and an hourly avoided cost value, for every MWh of energy integrated into Idaho Power's system for the life of the project. There is no evidence to suggest—and the Company has not made the case—that the AURORA production cost model's hour-by-hour avoided cost calculation does not already capture the costs that Idaho Power characterizes as day-ahead forecasting error costs in the 2013 Study. Idaho Power's treatment of these day-ahead costs in its 2013 Study methodology is incorrect from a wind integration perspective (as discussed further in Section 3), but in the context of excess must-take PURPA energy, we understand that Idaho Power may have difficulty remarketing surplus PURPA energy on a day-ahead basis. If the Company believes the AURORA model does not capture all the costs associated with excess must-take PURPA energy when the utility is surplus, it should reexamine and adjust the avoided cost methodology.

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[5] Idaho Power Response to Question 2 of Renewable Northwest and AWEA's Second Data Request (emphasis added).

When asked how the avoided cost methodology accounts for instances where Idaho Power is surplus on energy and must remarket the PURPA energy, the Company replied, "[w]hen the system is surplus on energy in a given hour for the AURORA simulation, the avoided cost is the cost of the highest cost displaceable resource that is serving load."[6] However, with a situation like the one Idaho Power faces, where it must take PURPA generation even when it is surplus on energy, the Company is in fact remarketing that energy instead of backing down the "highest cost displaceable resource that is serving load." Idaho Power's response appears to identify an inconsistency with how the avoided cost methodology treats must-take resources during surplus conditions. Under these circumstances, it would appear that the value of the PURPA energy is not the "avoided cost" of the "highest cost displaceable resource that is serving load," but rather a value more closely tied to the surplus energy market at that moment.

It appears to us that there is a tension between the IRP avoided cost methodology and the real-world circumstances Idaho Power faces with having must-take PURPA energy on its system under surplus energy conditions. Idaho Power's comments and data responses illustrate this tension. For example, in one data response, the Company recognizes that, "[a]ny transactional or operational costs incurred when moving [PURPA] energy to the market reduces the economic value of PURPA energy [and] [v]ariable energy resources further reduce the economic value of the energy because of their inherit variability and the resultant operational costs to remove that variability to market the product as a firm energy product."[7] However, Idaho Power does not explicitly identify the shortcomings of the IRP methodology in failing to capture some of these costs. Instead, another Idaho Power data response cites to a Commission ruling stating that the

[6] Idaho Power Response to Question 3 of Renewable Northwest and AWEA's Second Data Request.
[7] Idaho Power Response to Question 4 of Renewable Northwest and AWEA's Second Data Request.

Company's revised avoided cost methodology "properly focus[es] the determination of avoided costs on incremental costs, not solely on the value of potential market sales."[8]

Taken together, Idaho Power's statements point to an unintended consequence of the decision in Commission Order No. 32697 to move from an avoided cost methodology based on making surplus sales at future market prices (i.e., a "two-run simulation") to one based on the highest displaceable incremental cost (i.e., a "single-run simulation"). Rather than working through those issues, the Company is attempting to move what are properly components of the avoided cost calculation into a new "integration charge." While we sympathize with the Company's situation, we object to the characterization of its 2013 Study methodology and associated costs as a "wind integration study" that isolates and identifies "wind integration costs." Rather, as demonstrated by Idaho Power's own data responses, the costs identified in its 2013 Study are costs associated with must-take PURPA energy under surplus energy conditions, not wind integration costs more broadly speaking.

In order to accurately assess the value and cost of PURPA wind on Idaho Power's system, the avoided cost methodology and the integration cost methodology must be considered in tandem, with an eye toward avoiding any overlap or inconsistencies between the two methodologies. Until Idaho Power can conduct a more holistic analysis of the relationship between its calculation of avoided costs and "integration costs," the Commission should direct the Company to use its 2007 Wind Integration Study (with updated numbers) as the basis for determining wind integration costs.

[8] *Id.*

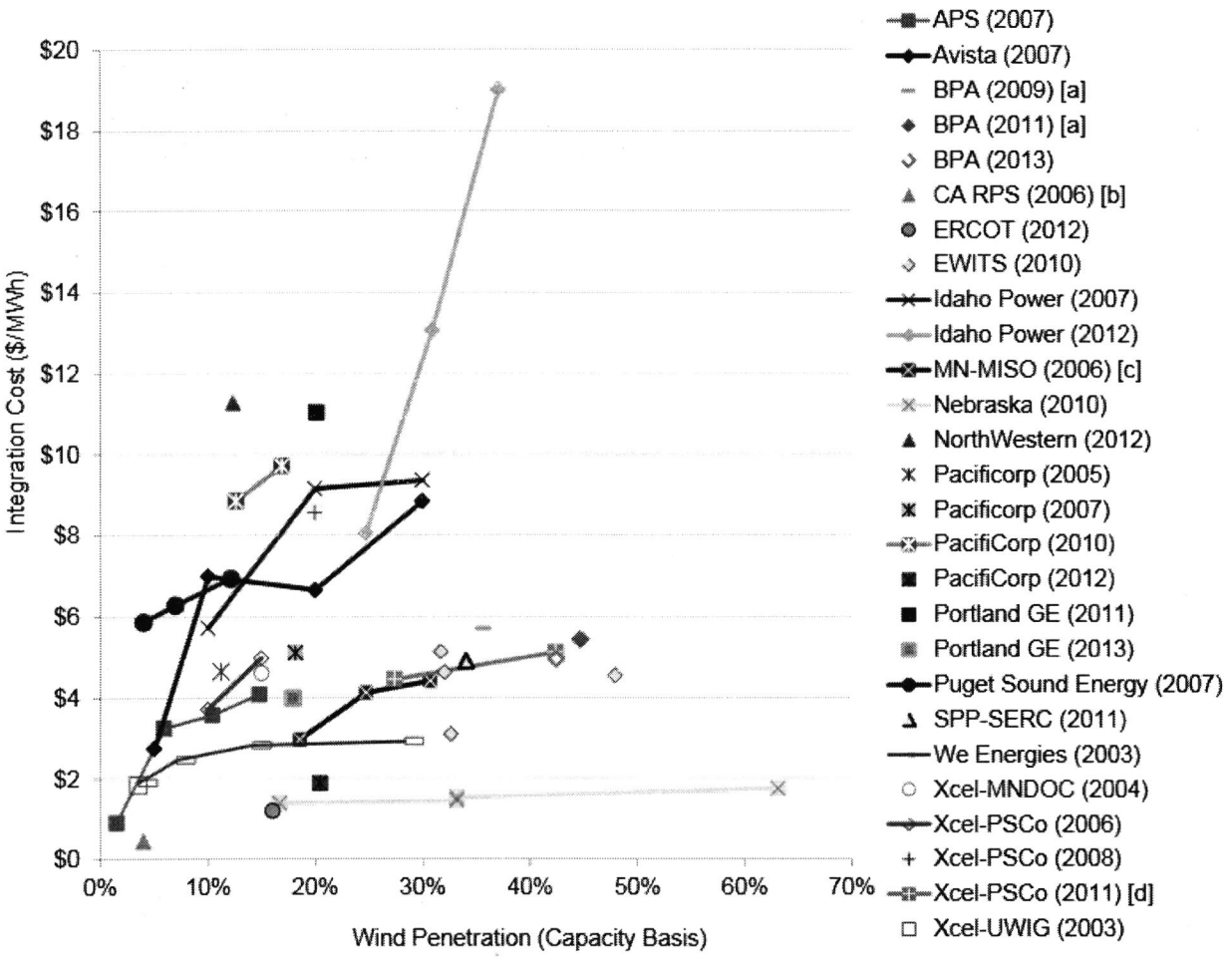
3. A True Wind Integration Study Would Not Contain the Methodologies Used in the Company's 2013 Study

As discussed here and in our July 2, 2014 comments in this proceeding, the Company's 2013 Study contains significant methodological flaws. The primary shortcomings of the 2013 Study are that it (1) uses the day-ahead wind forecast error instead of the hour-ahead forecast error in calculating the reserve requirement for wind; and (2) calculates reserve requirements based on the outdated assumption that reserves balance wind variability on a stand-alone basis instead of the standard operating practice of balancing the deviations of net load (load minus wind and other generation).

In response to our opening comments identifying the methodological flaws in the 2013 Study, Idaho Power's Reply Comments claim that the universal statistical and economic principles that underlie wind integration studies for other areas do not apply to Idaho Power.[9] We disagree. While any utility's unique circumstances must be considered when designing a wind integration study, those circumstances do not change the fundamental principles of statistics and utility economics. As illustrated in the following chart, Idaho Power's proposed reserve needs and wind integration costs are extreme outliers across all utilities, even among other power systems in the unorganized, bilateral markets of the West:[10]

[9] Idaho Power Reply Comments at 11.

[10] Ryan Wiser and Mark Bolinger, 2013 Wind Technologies Market Report at 70 (USDOE Aug. 2014), *available at* http://emp.lbl.gov/sites/all/files/2013_Wind_Technologies_Market_Report_Final3.pdf.



Idaho Power's claim that it cannot use netting and more up-to-date forecasts is unsubstantiated. Netting different sources of variability and using the most up-to-date forecasts for those sources of variability have been the cornerstones of reliable and efficient operations for all electric utilities for nearly a century. In fact, Idaho Power's Reply Comments acknowledge that it updates day-ahead *load* forecast information as it moves closer to real-time, allowing day-ahead load forecast error to be "addressed through the hour-by-hour management in real time described by AWEA/RNW in their Comments."[11] The same principle that makes it efficient for

[11] Idaho Power Reply Comments at 13. ("NREL also importantly notes that significant day-ahead load forecast errors are often auto correlated, reflecting a tendency for day-ahead load forecast errors to persist in magnitude and direction throughout the day. Because of this tendency, day-ahead load forecast errors

Idaho Power to address load forecast errors through hour-by-hour management—the fact that forecast error is reduced as one moves closer to real-time—also applies to wind forecast error. This fact is also acknowledged in Idaho Power's Reply Comments: "AWEA/RNW correctly note in their Comments that wind energy forecast error is greatly reduced as forecast lead time is reduced."[12] If Idaho Power is able to use "hour-by-hour management" to more efficiently accommodate load forecast error, it can also use hour-by-hour management to more efficiently accommodate wind forecast error. Idaho Power has not provided any analysis to support its assertion that market or other barriers make it impossible to use hour-by-hour management to better accommodate wind uncertainty.

The universal consensus of the published technical literature is that day-ahead wind forecast error has a small impact on power system costs, as updated forecasts are used for the economic dispatch process. In fact, the NREL paper that Idaho Power cites in its Reply Comments as an authority on how wind and load forecast errors are accommodated concisely makes this exact point:

> It is important to note that the [wind forecast] error shown is at the day-ahead timescale, and so only impacts unit commitment decisions. Updated forecasts may be incorporated into the economic dispatch process and could eliminate or reduce the error before the dispatch timeframe. The only possible cost then associated with the error would be the difference between supplying that energy with a mid-merit unit that may need to be started and a baseload unit that might have otherwise supplied the required energy.[13]

Notwithstanding Idaho Power's citing of this paper, the Company's 2013 Study uses a day-ahead forecast error assumption in a manner that drives up the costs of integration considerably. The

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are more readily addressed through the hour-by-hour management in real time described by AWEA/RNW in their Comments.")

[12] *Id.* at 12.

[13] Bri-Mathias Hodge, *et al.*, A Comparison of Wind Power and Load Forecasting Error Distributions at 5, (USDOE May 2012), *available at* http://www.nrel.gov/docs/fy12osti/54384.pdf.

Company's methodology drives up the costs in two ways: (1) by driving up the need for reserves through the day-ahead forecast assumption (instead of using an hour-ahead assumption); and (2) by driving up the cost of providing this inflated amount of reserves by requiring expensive, fast-acting reserves instead of relying upon less-expensive unit-commitment decisions and the hour-by-hour economic dispatch process.[14] Thus, by setting the reserve requirement based on day-ahead forecast error but then requiring the use of expensive fast-acting reserves to meet that reserve need, Idaho Power is having it both ways in driving up the calculated cost of providing reserves. Idaho Power needs to either (1) allow lower cost options to be used to address day-ahead forecast errors; or (2) acknowledge that the fast-acting reserves it is charging for are only truly needed for deviations that occur closer to real-time, and that forecast error at a time period closer to real-time, such as hour-ahead forecast error, is the appropriate metric for setting the need for those reserves.

With respect to netting, Idaho Power's argument that it cannot net wind variability and forecast error with other sources of variability and uncertainty is not compelling. In its Reply Comments, Idaho Power asserts that "[t]he challenges in forecasting wind and load for day-ahead unit commitment are considerably different, requiring the system to treat differently the possibility of errors in forecasting these two elements of the load and resource balance. Moreover, the different treatments necessary for load and wind make impractical the netting advocated by AWEA/RNW in the analysis of errors for load and wind."[15] However, Idaho Power does not provide any evidence to support this assertion.

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[14] *See, e.g.,* 2013 Study at 16 ("As a consequence of the high operating costs, the simple-cycle turbines have been historically operated primarily in response to peak demand events and have seldom been dispatched to provide operating reserves."); Direct Testimony of Philip B. DeVol at 7 ("Natural gas units can respond to changes in wind generation, but they have to be operating to do so.").

[15] Idaho Power Reply Comments at 13.

The netting of different sources of variability and uncertainty, including loads and generators with very different types of variability and uncertainty, has been a cornerstone of efficient utility operations for more than a century. In fact, the efficiencies realized through this netting is one of the primary reasons why in the late 19th Century, the power industry moved to large integrated power systems instead of coupling individual generators with individual loads. Idaho Power and other utilities already integrate hundreds of thousands of different loads on a daily basis, each with unique properties for variability and uncertainty.

Statistical techniques readily allow grid operators to determine the optimal reserve levels needed to accommodate the combined variability and uncertainty of all loads and generation on the power system; this same principle applies when wind generation is added to the power system. For example, while conventional generator output deviations and large industrial loads may exhibit a large amount of variability from second-to-second that are largely independent of the weather, yet lighting and air conditioning and heating loads may experience more gradual changes over time that are largely dependent on the weather, grid operators are able to statistically combine those sources of variability and uncertainty to set an optimal level of reserves that efficiently manages the total variability and uncertainty of all factors.

In referencing the NREL paper, Idaho Power has acknowledged that wind forecast error has the same type of normal distribution pattern that characterizes load forecast error, albeit with a slightly different normal distribution shape. As a result, Idaho Power could easily follow the standard practice employed by every other utility and use basic statistical techniques to combine sources of variability and uncertainty that have different normally distributed shapes to determine the optimal reserve levels. In fact, that aggregation is already happening on Idaho Power's system through the laws of physics, as different sources of generation and load

electrically combine and net out their variabilities. However, in its 2013 Study, Idaho Power ignores the statistical reality of how those sources of variability are aggregating, instead choosing a methodology that exaggerates the reserve requirement for wind. This methodological error by itself guarantees that the reserve requirements estimated in the 2013 Study are greatly inflated. Isolating the effect of netting the variability of wind and load would enable the resulting reserve reduction to be subtracted from Idaho Power's reserve needs.

In light of the deficiencies with the 2013 Study, the Commission should direct the Company to use its 2007 Wind Integration Study as the basis for determining wind integration costs until such time as the Company can complete a new study that corrects the methodological flaws used in the 2013 Study. If the Commission nonetheless accepts the 2013 Study as the basis for wind integration charges for wind QFs without requiring any changes to the study, the Commission should clarify that such acceptance of the 2013 Study is without acceptance of the underlying methodologies. In addition, the Commission should require regular updates to the Company's wind integration studies (at least with every IRP cycle) to ensure that the most current data and methodologies are being incorporated into the studies.

4. Idaho Power's 2013 Study Methodology Should Not Be Applied to Non-PURPA Circumstances.

In addition to our concerns about the 2013 Study itself and its blending of PURPA costs with "wind integration" costs, we are concerned with how the costs and rates identified in the 2013 Study might be applied outside of the PURPA context. In particular, we are concerned with how the 2013 Study is applied to (1) an IRP analysis evaluating the costs of different energy resources to serve an identified energy deficit on Idaho Power's system; and (2) an open access transmission tariff ("OATT") schedule (reviewed by the Federal Energy Regulatory

Commission) for balancing the within-hour deviation of a transmission customer's wind energy schedule exported out of Idaho Power's BAA.

When asked how the Company might apply its 2013 Study methodology and costs to an IRP analysis evaluating different energy resources to serve an identified energy deficit on its system, the Company responded that, "Idaho Power proposes to include integration costs for wind as set forth in Schedule 87 [as proposed in this docket]."[16] We disagree that the costs identified in the 2013 Study are appropriate for analyzing the value of wind energy resources serving an identified energy need on Idaho Power's system. Under these circumstances, Idaho power would not be surplus on energy and would instead be backing down more expensive generation when the wind was generating. In light of this, the Company should use its 2007 Wind Integration Study methodology (or an updated study) in order to identify integration costs for non-PURPA wind that would be used in an IRP for purposes of evaluating different energy resources to serve an identified energy need on Idaho Power's system.

With respect to an OATT schedule for balancing the within-hour deviation of a third-party's wind energy schedule exported out of Idaho Power's BAA, the Company acknowledged that it "does see a difference between must-take PURPA wind energy and a generator that is a transmission customer not sinking the generation into the Idaho Power BAA."[17] Thus, it appears that the Company does not intend to apply the 2013 Study and integration costs to a wind generator transmission customer exporting its generation outside of the Idaho Power BAA. We agree with Idaho Power that there is a significant difference between the integration charges applicable to a wind generator transmission customer sinking the generation outside of the Idaho Power BAA and the costs associated with accommodating excess must-take PURPA generation.

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[16] Idaho Power Response to Question 6 of Renewable Northwest and AWEA's Second Data Request.
[17] *Id.*

To the extent that the Commission accepts Idaho Power's 2013 Study as the basis for "wind integration charges" applicable to wind QFs under PURPA, we request that at a minimum, the Commission clarify that such charges (1) would not be applicable to a wind generator transmission customer transferring its energy outside of the Idaho Power BAA; and (2) would not be used as the basis for wind integration charges in a subsequent IRP for purposes of evaluating different energy resources to serve an energy need on Idaho Power's system.

5. Summary of Recommendations.

As discussed in these Supplementary Comments, the majority of the costs that Idaho Power characterizes as "integration costs" are costs associated with the remarketing of excess, must-take energy when the Company is surplus on energy. These costs should be included in the avoided cost methodology in order to avoid any overlap or inconsistencies.

Due to the deficiencies with the 2013 Study, the Commission should direct the Company to use its 2007 Wind Integration Study as the basis for determining wind integration costs until such time as the Company can complete a new study that corrects the methodological flaws used in the 2013 Study. Such new study should focus on the within-hour balancing needs of the net load and wind variability. After conducting such a study, to the extent that Idaho Power finds there are additional costs associated with must-take PURPA wind that are incremental to the integration costs identified in a proper study, those costs should be captured through the Company's avoided cost methodology.

If the Commission nonetheless accepts the 2013 Study as the basis for wind integration charges for wind QFs without requiring any changes to the study, the Commission should clarify that such acceptance of the 2013 Study is without acceptance of the underlying methodologies. In addition, the Commission should clarify that wind integration charges derived from the 2013

Study would not apply to a wind generator transmission customer transferring its energy outside of the Idaho Power BAA, and would not be used as the basis for wind integration charges in a subsequent IRP for purposes of evaluating different energy resources to serve an identified energy need on Idaho Power's system.

Finally, the Commission should require regular updates to the Company's wind integration studies (at least with every IRP cycle) to ensure that the most current data and methodologies are being incorporated into the studies.

IV. CONCLUSION

WHEREFORE, Renewable Northwest and AWEA respectfully request that the Commission adopt the recommendations set forth in these Supplementary Comments.

DATED this 4th day of September, 2014

K&L Gates, LLP

By _____
Teresa Hill
Attorney for AWEA and Renewable Northwest

CERTIFICATE OF SERVICE

I hereby certify that on the 4th day of September, 2014, a true and correct copy of the foregoing SUPPLEMENTARY COMMENTS OF RENEWABLE NORTHWEST AND AMERICAN WIND ENERGY ASSOCIATION, Case No. IPC-E-13-22, was served by electronic mail to:

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